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VOL. XIII, No. 23. NOVEMBER 9, 1916

THE JOURNAL OF PHILOSOPHY
PSYCHOLOGY AND SCIENTIFIC METHODS

SENSATION AND PERCEPTION

II. THE ANALYTIC RELATION

THE preceding article on the genetic relation of sensation to perception contained a criticism of the doctrine that sensations are genetically prior to perceptions and form the raw material of the latter, together with a presentation of the alternative doctrine that the capacity for experiencing qualitatively distinct sensations is conditioned by the functional differentiation of the sensory centers in the cortex, and is thus a product of the same process of development that issues in the formation of perceptions. I wish now to consider more fully what the conditions are which determine the experiencing of specific sensations, and how such experience is related to perception. The inquiry of the present paper is directed not so much to determine on what the general *capacity* for sensation depends, as to determine the conditions under which sensations actually are experienced. It is thus the problem of the analytic relationship of sensation to perception with which we are to deal. In this field, as elsewhere, it is to be expected that genetic and analytic investigations will be of mutual service.

If we compare sensation with perception in their relation to behavior we find ourselves at once face to face with a striking and fundamental difference. The sensation has no direct relationship at all to behavior. Sensation-qualities in themselves call for nothing determinate in the way of response. Whiteness, pressure, warmth, C_3 *may* lead us to practically any sort of response of which we are capable; but what particular response, or modification of response, any one of them actually calls out depends, in the first place, upon the objective whole to which it belongs, and, in the second place, on the situation. Abstracted from an object and isolated from a situation, it leaves us perfectly indifferent as to how we shall act. It is indeterminate in its relation to behavior. Perception, on the other hand, being the apprehension or awareness of an *object*, stands in a determinate, albeit indirectly determinate, relation to behavior. If there is no one inevitable response to an apple, a dog, a tree, or a

man, there is at least a set of alternative possible modes of response within which the actual response will probably fall. Our customary and appropriate ways of treating an apple are characteristically different from our customary and appropriate ways of treating a dog, or a man. Just what particular response is demanded by an object on any given occasion depends on the situation of which the object is a constituent or factor. As a matter of fact, it is just this characteristic relationship to behavior which constitutes the very essence of objectivity. A certain complex of nervous excitations, *e. g.*, the "visual appearance," the "smell," the "feel" of the apple, have become organized into a percept solely through the fact that they have come to call out a distinctive sort of behavior, have become coordinated into a functional whole. So again, a complex group of retinal excitations become organized into a visual perception of an apple because it has come to function as a whole in determining response.

The same contrast between sensation and perception appears again if we compare the properties of things which are most clearly related to simple sensation qualities—as color—with those properties which are apprehended through perception, as shape and size. Generally speaking, there is no sort of behavior which is demanded by blue objects, or by objects which feel "cold," or taste "sour." The shapes of things, on the contrary, and their sizes, demand appropriate treatment. If you take hold of a square-cornered object, you grasp it differently, and handle it differently, from the way you grasp and handle a round object. Similarly with its size and weight and position. These all call for a fairly definite set of possible muscular adjustments.

The fact that sensation stands toward behavior in so different a relationship from that of the percept is of the utmost significance for an adequate theory as to the place and function of sensation in experience. It is really this fact of the functional indeterminateness, or what we may call the *functional independence,* of the sensation which enables the psychologist to treat the sensation as a structural element, a simple process which has no meaning, and which by itself can (as Professor Titchener says) do nothing but go on. It is from this central fact of its functional indeterminateness that we must interpret the doctrine that the sensation is an element into which the so-called perceptual complex may be resolved, and in terms of which it is to be construed, a doctrine hopelessly unintelligible from the conventional standpoint of analytic psychology.

The difficulties in the traditional treatment of the sensation as an element I have discussed in a former article.[1] It may, however, be worth while to consider them further in the present connection.

[1] "The Psychological Element," *The Phil. Rev.*, July, 1915.

According to the current doctrine we never experience a sensation "pure" or by itself, but always as a constituent or factor in a complex. We are, however, led to believe that there are such things as sensations because, when one of these complexes is analyzed by introspection, we find ourselves able to attend to color quality, or pressure quality, or tone quality, in disregard of the fact that it is the color of a piece of paper, or the pressure of a pencil, or the tone of an organ. However, this simple sensation, thus isolated by attention, is experienced as somehow different, by virtue of the very fact of attention. The sensation as it really is in the complex can be known only by analogy to the sensation as isolated by analysis. For this reason the sensation is said to be an abstraction, or an artifact, comparable to the atom or the ion, an existent, that is, which is postulated for the purposes of scientific construction. Now any whole, whether it be a loaf of cake, an engine, or the human body, is analyzed into constituents or factors solely in so far as these constituents may be conceived to enable us to account for the properties and behavior *of that whole.* In order to meet this requirement, the elements found, or postulated, must themselves have definite properties, and such properties as can account for the properties of the whole. Thus the properties postulated of the ion, or discovered to belong to the cell, are relevant to the properties of the atom or to those of the organism, and help us to understand these latter. It is only as the bearer of these relevant properties, indeed, that the ion is postulated at all, and the same may be said in its turn of the atom. But in the case of the sensation the situation is altogether different. The sensation, even if the psychologist could consent to accept it as an entity capable of behavior, has no known properties or modes of behavior which help us to understand the complexes into which it enters. It is in itself, indeed, merely an hypostatized *quality.* The properties or characteristics of the complex are not conceivable as resultants or products of the joint activity of the constituent sensations. The one salient feature of the percept, that which makes it a whole—namely, that it is meaningful—is quite unaccountable so long as we treat it as a "complex" of sensations. No scientific doctrine was ever more futile or barren of results than this doctrine that the percept is a complex of sensations.

The only ground for supposing that perceptions contain sensation elements at all is the fact that if a given perception is lost under certain circumstances, when, as the psychologist says, it is "pulled to pieces" by psychological analysis, we experience determinate sensation qualities. Now it is only metaphorically that we can speak of "pulling a perception to pieces," or "breaking it up," or even of "analyzing" it into elements. For in the very act of performing

the "analysis" the perception disappears. It is not that the whole is destroyed as a result of the analysis, as always happens as the result of any analysis, but that in the very shift of attention necessary to introspection the perception has vanished utterly. We no longer "see" or "feel" or "hear" the object, but only variegated patches of color and the pull of eye-muscles, or the coldness and pressure and strain, or shrill sounds and beats. The assumption that these are to be identified as elements of the perception which preceded them and which we may alternate with the perceived object at will, rests on a very natural confusion. The continuity exists solely in the *objective conditions,* and the only intelligible identity is that of the *external stimulus* now and then. Indeed, it may be asserted that the only identity ever recognized, or that we are capable of recognizing, is an identity of reference. If there be such a thing as a purely existential identity between the content of one moment's experience and that of the next, it certainly does not obtain in this case.

In thus urging that psychological analysis is not an analysis of a psychical complex, I am not arguing for a view like that held by William James, that it is an analysis of the object. For the sensation "elements" reached are no more truly elements of the object than of the percept. Take the case of a visual perception. My hat lies on the desk before me. Looking "at" it, I put myself in the attitude of the psychological observer. The familiar hat disappears and I see an area of markedly variegated browns and grays and blacks and flecks of brightness, with another equally, but differently, variegated mass rising at one end. Now these patches of differing color I should never think of attributing to my hat as "its" color or colors. I distinctly see grays and blacks; but my hat is a uniform *brown* of rough straw, with a darker *brown* feather; and if I were to "match" the straw or the feather with silk or velvet, I should never think of looking for such a mass of variegated tints and hues. Furthermore, the difference in shade which I attribute to the straw and feather as really "their" difference in shade, is not to be identified with the difference between any one of the patches of color in the mass at the end (the feather) and any one of the patches of the main mass (the straw). It is literally true that when I am looking for the contrast between straw and feather I do not see these patches, just as when I see these patches I do not see the "real" color of straw and feather. Again, in the dark I pick up an object and recognize it as this same hat by its familiar rough texture and flexible shape. But if, as I pick it up, I introspect, and note the varying pressures, and even pains, and the pull of muscles, these sensation qualities I can not conceivably attribute to the hat as making up its roughness and

shape. In these so-called cases of analysis, we are not, strictly speaking, "analyzing" at all, for the elements we come out with are not truly elements or factors of any whole, either objective or subjective. What has happened is that *the same objective stimuli are being responded to differently* on the two occasions. There is indeed a sameness, an identity there, but it is an identity, not in what I *perceive,* but in what I know by reflection to be there.

If the preceding contentions are just, it follows that sensations are analytic elements of our experience only in a very unusual and questionable sense. The doctrine, indeed, that they are results of analysis is but the counterpart of the time-honored doctrine that perceptions are the products of a synthesis conceived either as an organizing act of the mind, or as a structure produced by the associative agency of the elements themselves. There was a time—and the tendency still lingers in some quarters—when perception was regarded as a sort of condensed or sub-conscious inference operating on given and immediate matter or data of sense. Nowadays no one with psychological training would dream of so interpreting it. So far as adult experience, at least, goes, it is the perception which psychology regards as immediate and given, and the sensation which is the artifact. And yet the perception is nevertheless believed to have been generated by the organization of such given material of sense, and to remain existentially a complex of such elements in spite of its immediacy for our experience.

This doctrine, that sensations are existentially present in perception, like the doctrine that they are present in the infant's experience, has as one of its main supports the doctrine of specific energy. According to this doctrine, in its most generally accepted form, the different end-organs are normally excitable only by their own peculiar modes of external stimuli, and on transmitting the excitation thus produced to their respective cortical cells, mediate invariably their own peculiar sensation qualities. This being so, it follows that when a number of cortical cells are stimulated simultaneously (in such a way that coordinated functioning occurs) the perception mediated is a *complex,* containing these specific sensation qualities, slightly modified perhaps by their mutual interaction, but maintaining their essential specificities.

Now the essential inadequacy of the doctrine of specific energy one would suppose to have been made sufficiently manifest in Professor Dewey's article, "The Reflex Arc Concept," nearly twenty years ago. It surely is a doctrine which runs counter to the whole trend of present-day psychophysical interpretation. As Professor Dewey so forcibly urged, the reflex arc, from stimulus received to response evoked, is one unitary act or functioning of the nervous sys-

tem. There is no possible reason for cutting the act in two and treating the passage of the excitation to sensory area in the cortex as an event by itself. As a purely mechanical process in space and time it may be regarded as a single event, but as forming a part of the behavior of a conscious being it is no event, nor any intelligible factor in such behavior. As well try to construct the human body from "elements" obtained by a process of repeated bisection, as to construct perceptual experience in terms of specific energies.

The psychological weakness of the doctrine of specific energy shows itself when the attempt is made to interpret in its terms the facts of attention. So far as direct observation shows, whether I see the blueness (or the blackness) of the ink with which my friend's letter is written, depends on whether I am attending to the color. I am very likely to read the letter in complete obliviousness to the color of the ink—I literally do not *see* the color, and if I try to remember afterward, I have not the faintest memory of it. And yet my reading the letter depended on the excitation of "blue" retinal end-organs and the transmission of this excitation to the proper cortical cells. According to the psychologist, this phenomenon is due to inattention and is explained thus: Even though I do not attend to the color of the ink, yet I am, nevertheless, experiencing the sensation "blue" as I look at the letter. The sensation which I have is in the *margin* of attention, but it is the same sensation which I should have if I attended to the color, and the sensation occupied the *center* of attention. The marginal sensation differs from the focal sensation in the attribute of "clearness" only, but this does not, it is assumed, alter its identity. But now let us ask what evidence can be brought forward to support this interpretation. What empirical grounds are there for the assumption that I was experiencing inattentively the sensation blue, when I read the letter? If introspection is to be relied upon, one must conclude that I had no experience of blue. As a matter of fact, the theory is confessedly beyond the reach of empirical verification, for the so-called marginal content is admitted to be open to memory-recall in the lowest degree.

A similar case is that of the hearing of the overtones in the notes of a violin or of a flute. I hear the notes of the violin and of the flute as distinctly different. After the proper training I can, when I attend, hear out the overtones which give each its characteristic quality. But what evidence is this that I was all along hearing (inattentively) these same tones? I should have said before my training that the difference between the violin tone and the flute tone was a simple difference comparable to that between red and orange. To suppose that nevertheless the content of my perception was an existential complex containing these overtones as elements is a per-

fectly gratuitous assumption, which raises vicious epistemological problems and explains nothing. To attribute the experienced difference between violin and flute to the experiencing of different sensations is in principle no better than Descartes's theory of vision, in which he explained the perceived difference in distance between two objects seen, in terms of the angles made by the lines of sight from the two eyes. Doubtless it is true that if the angles were not different in the two cases, the objects would not appear to be at different distances; and doubtless if the notes of the violin and flute were not objectively complexes containing the overtones they do, they would not appear as qualitatively different. But the latter is as irrelevant as the former, when used as a *psychological* account of the difference. Nor is the case altered because under the proper conditions I can *hear* the overtones, whereas I can never directly *see* the angles. The "proper conditions" (trained attention) are as necessary conditions of my hearing the overtones, as is the existence of the specific air-waves, or the stimulation of the auditory end-organs.

The theory then has the weakness of assuming existents lying beyond the reach of empirical verification. But as a conceptual construction it is equally open to criticism. The chief difference alleged to exist between the marginal and focal sensation is a difference of "clearness," which is accordingly treated as one of the "attributes" of sensation. But the *existent,* as such, can not be more or less clear. It is only of *meanings* that clearness is predicable. The essential attribute of the sensation is its quality—in fact, as has already been remarked, the sensation is nothing more nor less than an hypostatized *quality.* The attribution of clearness to the sensation seems to be due to an inevitable confusion arising from the attempt to treat experience in terms of the existential. I look at the wall-paper inattentively, and am able a moment afterward to recall its color vaguely as "gray," but what sort of gray—whether light or dark, yellowish or bluish—I am entirely unable to tell. The unclearness is truly predicable of my experience, if the experience is taken as a sensation *of* a determinate gray. One might describe it as *meaning* gray, and then the unclearness could be attributed to it. But the psychologist is forced by his presuppositions to suppose that my sensation, *i. e.,* an existent whose essence is quality, existed as an *indeterminate* gray—a patent logical absurdity.

And this brings us to the heart of the discussion. So far I have argued that, on the one hand, it is theoretically unfruitful to regard the sensation as an element of the percept conceived as an existential complex; and, on the other hand, that there is no empirical evidence possible for such a doctrine. Furthermore I have criticized the doctrine of specific energy in its commonly accepted form, urging

that the experiencing of sensation-qualities depends as much on the condition of attention as on the stimulation of the appropriate end-organs and sensory cells, *i. e.*, on the part which the stimulated sensory cells play in determining the response. Not every discharge of a given set of sensory cells in the cortex yields the specific sensation-quality they are capable of mediating. The problem then is: Under what conditions are these sensation-qualities experienced, and how are these conditions related to the conditions under which perception occurs?

As has already been asserted, the point of departure for a theory of perception is the relation of sensation to behavior. Psychophysically this means that it is to the mode of functioning of the sensory cells of the cortex that we must look to discover the conditions of sensation. From the outset of conscious life in the individual the functioning of the nervous system is marked by the presence of inherited functional systems, the operation of which we call instincts. And just as the evolution of behavior takes place through the mutual inhibition and modification of instincts, so the complicated functioning of the nervous system which constitutes the conscious behavior of the adult has developed through the growing differentiation and coordination of the inherited functional systems. Thus it remains true that every nervous functioning is the functioning *of a system.* The discharge of cells in the sensory cells never dissipates itself indifferently, but always tends to follow some more or less determinate path or system of paths. Just what system of paths, and what particular path within that system will be chosen, depends on the attentive "set" of the cortex, as well as on the particular combination of sensory stimuli received in the various centers. The response, that is, is never a response to a single stimulus, or to a single object, but is always a response to the situation. Completely uncoordinated response is abnormal response. Stimuli are truly stimuli only in so far as they are coordinated. The normal nervous system is incapable of acting except through the operation of functional systems, mutually inhibiting, facilitating, and modifying each other in their action. We never perceive anything entirely unfamiliar; every sight and sound and feeling, however strange, has some character which places it for us, if only by its demand for further specific examination.

From the start, anything which acts as a stimulus at all tends to evoke some response. In the preceding article it was argued that just as the early responses are vague and uncertain, so the early stimuli must be experienced as correspondingly vague and indefinite. The adaptation of response to stimulus is rough, being direct and simple instead of indirect and complex. Just as the chick pecks at

any small moving object, so the baby grasps at practically anything within its reach. But with the growth of the power of varied manipulation comes a new ability to discriminate between visual stimuli. Let us consider what this means in terms of nervous functioning.

At first the group of sensory cells in the visual area, for example, possesses a minimum of differentiation. The excitation of all alike is connected with responses controlling eye-movements. But soon there arises a differentiation of cells due to differences in retinal stimulation correlated with differences in location of the source of stimulation—the object seen. The child learns to turn eyes and head left or right, up or down, to look *at* the attractive light or object, as well as to fixate it for clear vision. This differentiation of the sensory cells of the visual center can, of course, develop only in coordination with muscular stimuli due to movements of eye and head muscles. As a result of this early development, there is a definite and quite simple functional differentiation of sensory cells in the visual center correlated with differences in spatial position of object seen. Certain combinations of visual cell stimuli, acting in conjunction with certain combinations of cell stimuli in other sensory centers, form functional units bringing about a response of definitely adjusted eye and head, and later, arm and hand movements.

Now this differentiation of visual cells corresponding to spatial localization is quite independent of any differentiation depending on difference in sense quality. Color-tone and brightness play no part in the development of spatial coordinations. Compared with the direct and simple functional differentiation of cells due to spatial differences, it might be said that there is no functional differentiation corresponding to differences in sense quality. And yet this would not be true, for the processes which bring about at once the development of behavior and the development of nervous functioning, issue as well in a very characteristic functional differentiation of sense-qualities. Although the cortical cells mediating red and green function indifferently in determining motor adjustments to spatial differences, and belong indifferently to the same functional systems in so far, yet they do not by any means always function indifferently, nor belong to all the same functional systems. On the contrary, they come to be members of a multitude of different functional systems, as it were by sheer chance. The color of a baby's ball may be red, and the paper on the walls of his nursery green; the flowers which he holds and smells are red, and the grass green; and so on indefinitely. That the thousand and one objects of daily life are colored as they are is a fact of little or no significance. The important classes into which the objects of a child's world fall (or our own, for that

matter) are not characterized by colors. The "red" cells (or, if you will, the chemical process in the cortical cells which mediate red) *may* enter into almost any of the minor functional systems generated by the habitual surroundings of a child's daily life. The important point is that, as a matter of fact, they do come to enter into indefinitely different functional relations, just as do the "green," and "blue," and "yellow" cells. Each of these groups comes to be a unit in a multitude of functional systems, and a unit in a different multitude from every other. And the same is true in a greater or less degree of the different groups of cerebral cells mediating the sensation-qualities of the other sense departments. This peculiar characteristic which the sensory cells thus acquire I shall term *functional indeterminateness,* or *functional independence.* My hypothesis accordingly is that *the functional indeterminateness or independence of the sensory cells of the cortex is the essential condition of their mediating the experience of sensation qualities.*

This hypothesis, it is to be observed, is not offered as an alternative to the doctrine of specific energy, but as a supplement to it. That the different sense-organs, and the differentiated groups of end-organs belonging to the different senses should possess a selective capacity with reference to different physical stimuli, and that this nervous discrimination should be represented in the sensory cells of the cortex is, of course, a primary condition for the experiencing of distinct sense-qualities. But as it stands, the doctrine of specific energy is, as I have tried to show, hopelessly inadequate. The fact that certain groups of cortical cells are invariably stimulated by specific sorts of physical agencies is insufficient to account for the fact that we experience these agencies as qualitatively distinct. It is equally essential that these different groups of cells thus stimulated should possess characteristic and distinct functional relations. And such relations, as has been shown, they do possess.

The significance of the functional indeterminateness of the sensory cells must now be pointed out. It might perhaps be supposed at first thought that qualitative distinctness would depend on direct and simple functional differentiation. That is, one might suppose that it would be the stimuli which demanded specific and determinate responses which would be experienced as possessing specific qualities; and that two stimuli which evoked specifically different responses would be experienced as differing in qualitative specificity. But a little consideration serves to show that such a supposition would be ill-founded. If two stimuli habitually and therefore directly evoked specifically different responses, they would probably not be experienced at all. It is only the stimulus which is uncertain, and whose response awaits determination, that rises to consciousness. Our

awareness of it, the degree of our attention to it, depends precisely on its *indefiniteness* as a determinant of response. The stimulus whose response is immediate and certain is one to which we have neither need nor power to attend. Attention means the holding of the gates of action in readiness, a checking of the impulse to act, and consequently an increased excitement of the sensory areas involved. But this is precisely the condition under which the distinctive character of the stimulus is experienced, the condition under which quality emerges.

With this in mind, we are now ready to define more nearly the relation of sensation to perception. The complete determinant of response, as has already been pointed out, is in every case the situation as a whole. The situation itself is constituted by two complex groups of factors—on the one hand, the previous "state of mind," the whole "set" of the cortex; and on the other, the group of stimuli reaching the cortex through various avenues, so far as these are coordinated. (If any fail to enter into coordination they are not experienced at all.) Now this second group has a structure of what we may call the second degree of complexity. That is, the factors into which it naturally falls are themselves complex—they are themselves objects of perception, functional units which maintain their integrity from situation to situation. Let us take an illustration. My behavior at breakfast is a response to the whole breakfast-situation. I come downstairs when the bell rings and take my accustomed seat, greeting the other members of the family as they take their accustomed seats. I stir my cup of coffee, putting in two lumps of sugar, and pouring cream from the pitcher at my right, etc. Now I should not give these same responses to any of the factors of this situation on any other occasion than breakfast. If I meet my brother later in the day, I accost him differently. If I enter the dining-room in the middle of the morning, I do not seat myself in the same place, nor, if a cup is on the table, do I go through the same series of acts. Yet these factors—my brother, the chair, the cup, etc., are each and all functional units. My brother is my brother wherever and however I see him, and he is the object of characteristic behavior on my part. And similarly with the chair or the cup. The various combinations of visual and tactual and muscular and temperature stimuli arising from a dining-room chair are so coordinated that they form a functional unit, which, although "structurally" complex, maintains its integrity in all but unusual circumstances. However much I may hesitate and reflect as to how I shall act toward the chair, I rarely consider treating it except *as* a chair. My hesitation may cause me to observe the crack in its leg, or the hole in its leather seat, and I may avoid using it, and put it aside to send away for repair.

Now, under all these conditions, I probably have at no time been aware of a single one of the numerous sensations, or sense qualities, which the chair-group of stimuli would ordinarily be said to include. When I touch it, I do not feel the slight cold, nor, as I look at it, do I see the changing hues and tints and brightness of its surface. As Professor Pillsbury has said somewhere, "we see in terms of meaning," and these sensation elements have no relevance to the chair or its condition. But let me enter the dining-room engaged in reflection on psychological analysis, and a new and very unusual situation has arisen. The table and chairs and cups are not the factors of this situation, and all my customary modes of response to these coordinated groups of stimuli are inhibited, and the integrity of the common functional units is broken down. As I look at the chair, I no longer see the *chair,* but the variegated patches of color, and as I touch it I feel the pressure and the cold. But this could not happen if the cortical cells stimulated by these diverse end-organs in retina and muscle and skin did not possess functional independence. It is only because each of these groups of cells belongs in a great variety of functional units, *i. e.,* perceptual systems, that its functioning in the chair-percept can be inhibited, and its own individual quality flash out. Thus while under ordinary circumstances a group of sensory cells capable of mediating a specific sensation quality functions only as a factor in some functional unit, it may, because of its very independence, become determinative of response by functioning as a unit itself. This happens in such children's exercises as the sorting of colored worsteds, or similar Montessori games; and it always happens in the psychological laboratory in the numerous experiments where the response of the observer varies with changes in sensation quality.

Perhaps it will serve to make clearer what is meant by functional independence if we contrast the sort of functional differentiation possessed by sensory cells in the cortex connected with contiguous warm and pressure end-organs on the hand, for example, with the differentiation possessed by cortical cells connected with warm end-organs on the two hands, respectively. The former mediate sensations of the *same "local sign,"* but of *different sensation quality;* the latter mediate sensations of *different "local sign,"* but of the *same sensation quality.* Now in the former case, the "contiguous" warm and pressure cells in the cortex have the *same direct* functional connections. They both alike and indifferently evoke the same lower-level responses of touching the back of the hand with the other, of looking at it, etc. But their *indirect* functional connections are indefinitely *different.* For more complex behavior than the mere touching and looking at the spot, it makes a great deal of difference

whether the stimulus is felt as warm or merely as a pressure which excites no temperature sensations. If I am alone in my room in the dark, for example, and the back of my hand comes in contact with something *warm,* I may perhaps shriek in terror. It all depends on the situation, of course, but in similar situations warmth and pressure may lead to very different sorts of behavior.

In the second instance, where the cells stimulated are connected with the warm end-organs on the two hands, the case is just reversed. The more *direct,* lower-level connections are *different,* mediating different simple responses, while the more *indirect* and complicated connections are *similar.* Alone in the dark room, the warmth on one hand is just as terrifying as on the other. One serves as well as the other to initiate the behavior appropriate to "something alive in the room." Broadly speaking, other things being equal, difference of sense-quality in the stimuli means a difference in general character of objective conditions, and a corresponding difference in the sort of conduct appropriate; while difference in local sign, other things being equal, means a difference in the relative position of external objects, and a corresponding difference in the specific modification, or detailed adjustment, of the already indirectly determined general response.

According to the hypothesis put forward in these pages, there is no isolable element of "local sign"' to be found by introspection, no specific difference in quality between the pressure on one spot and the pressure on another, precisely because their functional differentiation is of this direct sort, and not of that indirect sort which has been designated functional independence. The experienced difference between two differently located pressure spots can be described only in terms of difference of meaning. One might almost say that it is experienced as a simple and immediate difference in meaning! The only thing existential, the only thing one can lay one's finger on when one attends to a pressure sensation, is its *quality.* And this is precisely because the specific determination of response due to its local sign does not fall within the control of attention. You can not imagine a pressure, or a warmth, or a cold, or a pain on or in the tip of your left ear, without an image arising of a movement of the hand to the spot, or, more probably, without actually feeling the slight anticipatory muscular strains; and you are certain to hold your head tense. But you can imagine the quality of warmth or cold, if it be not localized, without feeling an impulse to any response whatever. Or, perhaps a better illustration (since it is difficult to imagine the temperature qualities)—think of a bright spot, or a colored spot, at the extreme left of the field of vision. You have inevitably an image—or the actual beginnings—or an eye-movement in that

direction. But you can vividly imagine a deep sapphire, or a pearl gray, as such, without any such inhibited responses, for, as sense-qualities, they tend to call out none in particular.

In conclusion, there are a number of observations to be made regarding the general significance of the hypothesis presented in the foregoing pages. In the first place, if this hypothesis be well-founded, the psychological doctrine that the sensation is an element or a constituent of perception, at least in any such sense as it is now held, must be given up. So long as the sensory cells are acting as elements in a functional unit—while, that is, their action is so coordinated with the action of other sensory cells as it is in perception, they are not mediating the sense-qualities of which they are capable. For the functioning of the group as a whole, since it is a *functioning,* and not merely a "chemical discharge," is not in any sense a resultant of the functioning of the separate cells which compose it. The condition under which the constituent cells of the group may mediate their distinctive sense-qualities is the disintegration of the functional group, and the *independent* functioning of the cells in question. Each perception or perceptual act is mediated, however, by the unified functioning of a more or less variable complex group of sensory cells, and is thus correlated with a more or less variable group of sensation qualities. Accordingly, when the perception is lost through a shift of attention, the sensations that flash out will fall within this group. This much may then be said: Given a determinate set of peripheral excitations, there *may* be experienced any of the specific sensation qualities corresponding to the group of sensory cells excited. Whether *any* of this group, or *which* members, if any, are actually experienced, depends on the functional systems thrown into play within the cortex.

In the second place, from the standpoint of this hypothesis, it is possible to reach a new, and I venture to think a more fruitful, conception of the nature of psychological analysis and introspection.

Thirdly, it offers a new approach to the psychological problem of meaning (a problem vital to any general theory of the nature of consciousness) which, I again venture to think, would free it from many of its time-honored difficulties.

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THE TWO POLES OF THE PHILOSOPHICAL SPHERE

IN our attempts to understand the sphere or scope of any science it sometimes is difficult to point out any one distinguishing purpose, or method, or class of objects by which that sphere is delimited. Within the science in question the several studies seem to cohere rather loosely around some center. Thus, in the case of geology, the initial study seems to have been that of the earth's crust, its structure and stratification. From this, as from a center, geologists have made excursions into studies that are preeminently biological, physical, astronomical, or even chemical; nor is it clear that the purpose is always to throw light upon the original line of inquiry.

In the case of anthropology, the study of cultural origins was the beginning, and still is the nucleus of the science; but the anthropometric interest, which grew naturally enough out of the study of racial origins in their relations to culture types, already appears as an interest largely independent of its origin. The coherence here suggests that of an association complex, the cause being in some measure historical rather than logical,—a matter of custom and habit as much as of demonstrative necessity.

This acquired interest, moreover, of the anthropologist in anthropometric studies seems likely to provide that science with a new center, which might well serve as the nucleus of a vast science embracing most or all of what is now pursued under the name of psychology. In history also we may see a shifting of center. The original purpose of the historian was, ostensibly at least, the chronicling of events. But more and more the actual task of the historian is the illumination of present tendencies and present institutions, as will appear if one glances over the courses offered by any large department of history.

In philosophy, also, I wish to show, there have been and are two nuclei, neither of which seems to be distinguished as clearly as is desirable. By attending to this bipolar character of philosophical science I think we may avoid certain confusions and arbitrary positions, and set about the neglected task of defining the relation of one nucleus to the other.

It is usual to name metaphysics, logic (including epistemology), ethics, and esthetics as the great divisions of philosophy. In Plato's "Republic" we find represented each of these divisions. In addition we may note there the appearance of the type of psychology that is concerned with self-realization and the integration of personality—with the problems of happiness in its relation to character.[1] With

[1] The works of Macdougall and Shand, Perry's "Moral Economy," James's "Varieties of Religious Experience," and Hirn's "Origins of Art" occupy the field of this type of psychology.

Professor Creighton we may call this teleological psychology. It is related to ethics, and differs from it much as character is related to and yet differs from conduct. It is this teleological psychology which really sets the problem for the first four books of the "Republic." These books are concerned rather with practical wisdom than with knowledge or science, therein, no doubt, correctly representing the interest of Socrates, and of philosophy when the word was coined.

But in the sixth and seventh books we note a quite different center of interest, *viz.*, the inquiry after the nature of knowledge as distinguished from mere opinion. In the allegory of the cave and in the account given of dialectics, we find, as we find in the "Symposium," that the distinguishing nature of knowledge is placed in its unity, in the complete accordance of its parts. The fifth book, which seems to interrupt the argument, in fact serves to assist and, in a measure, to conceal the transition from one center of interest to the other. I shall call the first the eudaimonistic center and the second the dialectical center of philosophy.[2]

Let us note with some emphasis that this change of theme and of center is accompanied by a profound modification in the use of terms, and perhaps in the outcome of the argument. In the first part, the appetites are what feed and sustain reason, just as the appetite class in the commonwealth are maintainers and foster-fathers of their guardians. Reason, like the rulers of the state, is essentially the servant, though the guide. In the second part of the "Republic," reason has become the supreme aim of life, to be divorced from sense and appetite and use. Whereas in the first part Socrates questions whether the Tolstoian simplicity of villagers, reclining on rude beds of yew and myrtle boughs, is not the course of true health and wisdom, in the second, Plato presents the sage as turning with regret from his blessed speculations to legislate and educate from a sense of compulsion and duty. The "diseased" or "inflamed" commonwealth of the first part has in the second become the eternal civic pattern set in heaven.

We are forced to look upon this dialectical theme and interest as a new and distinct center because, while it also prescribes the organization of the state and the education of its guardians, it is not in its turn derived from the positions adopted in the first part in considering the eudaimonistic problem. Nor can it be said that in the whole history of philosophy there has been any direct and rigorous attempt to justify the dialectical pursuit upon eudaimonistic grounds. As Mr. Russell says, it appeals to but very few men.[3]

[2] We may suppose that it was his contest with the Sophists that urged Plato to the extreme dialectical position.

[3] "Scientific Method in Philosophy," p. 237.

Dialectics must be looked upon as a distinct center and interest, also, because in its search for a completely unified knowledge it has generally recognized that this ideal can be achieved only through a certain detachment or disinterestedness, a neglect of the individual point of view. But this individual point of view is of course essential to the study of the conditions of happiness. Hence, it would appear if the dialectical center is to be taken as the sole or the essential center of philosophy it must define very clearly the relation of its selfless, disinterested knowledge to the sort of awareness that takes note of relations to the self and to individuals. But it seems, on the contrary, that the more precisely the dialectical purpose is conceived and pursued, the less is this relationship made manifest and clear.[4]

To illustrate this point I would refer to Mr. Russell's "Scientific Method of Philosophy," where in the following terms the dialectical ambition is stated with unsurpassed clearness:

The body of common knowledge is our data; by analysis we reduce these data to propositions that are as nearly as possible simple and precise, and, arranging them in deductive chains, we arrive at certain initial propositions which serve as a logical guarantee for all the rest. These then appear as premises from which may be deduced the body of common knowledge from which we started.[5] Were Plato living now, in what words could he better describe his dialectical aspirations?

It is to this dialectical ideal of complete knowledge that Russell appeals in debating the freedom of the will.[6] Since such knowledge would embrace the future as well as the past, he argues, to it future events are just as determined as the past, and the apparent indeterminateness of the future is therefore a result of our ignorance. "It is a mere accident that we have no memory of the future." But, let us note, in experience that is *not* selfless, knowledge consists largely in appreciating the difference between events of which we have memory and events of which we have no memory; and with the absence of memory appears indeterminateness. Hence, to ignore indeterminateness would for this type of knowledge be ignorance indeed.

The question then hinges on the relation between the ideal of complete knowledge and that sort of knowledge which in its nature can not be complete. For it is clear we can not combine in one awareness

[4] Compare Spinoza's vague assertion that modes are *in* God, or Kant's arbitrary isolation of duty and the rational from desires and the sensible. May "disinterested love of knowledge" be reduced to the instinct of curiosity, turned, through the infant's inactivity, from sensations to images, and to self-assertion purified from pugnacity by fear, reenforced by play tendencies?

[5] *Op. cit.*, p. 211.

[6] *Op. cit.*, p. 234.

the sense that an event has not yet occurred with the sense that it has occurred. Yet both awarenesses are very important pieces of knowledge in every-day experience. Now the relation between knowledge that can not be completely unified, and the dialectical ideal of completely unified knowledge is considered by Russell only in such terms as these: "The free intellect will see as God might see, without a *here* and *now,* without hopes and fears, in the sole and exclusive desire of knowledge."[7] This statement seems to establish the manifold ignorance of such a God, and the incompleteness of such knowledge. It leaves quite undefined the relation between the dialectical postulate and such knowledge, if it is to be allowed the name, as the practical man deems most important.

Mr. Russell identifies this dialectical procedure with the study of logic,[8] which thus becomes the "central study of philosophy," and "gives the method of research in philosophy," just as mathematics gives the method in physics. Of such a philosophy he says[9] that it must not hope to find an answer to the practical problems of life. All the supposed knowledge in the traditional systems (of philosophy) must be swept away, and a new beginning made.[10] However, of the prospect of progress in philosophy it would be rash to speak with confidence.[11]

But, until this absorption in the dialectical pursuit is justified in its relation to the eudaimonistic interests of philosophy, must it not be classed, whether in Plato or in Russell, as a sort of obsession, a dogma, a religion? We may note its outcome in stimulating science, or in encouraging religious organization along the lines of a fixed and absolute creed, or in supporting an intolerance of conscience which is assumed to correspond to some eternal order of right and wrong. We may note its emergence in the Heracleitean conception of a *logos,* one and everlasting, and its persistence in setting the rational over against the instinctive, and the spiritual in contrast to the natural. But meanwhile there seems no adequate ground for identifying its pursuit with the scope of philosophy.

The picture I would now fix in mind, therefore, of the structure of philosophical science, is that of a sphere, with dialectics, the study of the presuppositions of a completely unified knowledge, at the North Pole, and at the South that study of the concrete individual, of psychical integration, of character and happiness which has been termed teleological psychology. (If we give to metaphysics the equatorial region, the intermediate zones may readily be assigned.)

[7] "Problems of Philosophy," p. 248.
[8] "Scientific Method," p. 239.
[9] *Op. cit.,* p. 29.
[10] *Op. cit.,* p. 240.
[11] *Op. cit.,* p. 242.

The purpose of this picture, and of this paper, is, in the first place, to show the isolated position at present occupied by the dialectical postulate of a completely unified knowledge, laying upon its supporters the burden of showing why logic and metaphysics and ethics need attach to this concept great importance. In the second place, the type of psychology which may be termed teleological, so little developed by professional psychologists, I would suggest is in truth an essential and a distinct branch of philosophical science, and perhaps its true center and nucleus.

This position will be received, I suppose, with more tolerance, if we recognize that the structure of any science may be somewhat loose, and hard to define in terms of any single purpose or method, that it may in fact be an accretion around more than one center of interest, as in the illustrations at the commencement of the paper.

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THE USE OF THE WORDS REAL AND UNREAL

THE papers of Professor Sheldon and Dr. Owen on "Unreality,"[1] call for further consideration on the part of those who are anxious that clear and definite ideas shall replace the merely emotional afflatus or vague edification that generally attaches to the words reality, experience, and the like.

I

Professor Sheldon's paper leads to a result to which I heartily subscribe, *viz.*, that the term *unreality* has been "a dead weight upon the mind—delivering no information and explaining nothing." But the dialectic method by which he seeks to establish this result seems to me entirely inconclusive.

The essence of Professor Sheldon's method consists in defining reality as bare being (including the King of Utopia, wooden iron, and Heaven knows how much else), and then ruling out of court all conceptions of reality not consistent with this certainly unusual definition. It is, of course, quite clear that if *reality* is identical with bare *being*, and the latter includes all that is mentionable and unmentionable, then there can be no *unreal* objects. But it is also clear that in all the great philosophic adventures reality has never been conceived as bare being, but rather as a certain kind of being, quite distinct from other kinds of being that must thus be defined as unreal. Unreality is thus as necessary for the significant existence of reality, as pupils are necessary for the existence of a teacher, or sub-

[1] This JOURNAL, Vol. XIII, pp. 318, 322.

jects for the existence of a sovereign. Professor Sheldon assumes that if reality is held to be a specific kind of being, it must necessarily be defined as *being plus a given quality.* I am not sure that this is necessarily so. Conceivably one might begin with a list of categories or types of being, and define qualities by reference to these classes. But even if we waive this point we need not admit that Professor Sheldon has made any valid objection to defining reality as being plus a given quality. He urges that no quality can be more real than another, and therefore, all definitions of reality are arbitrary. But Professor Sheldon's assumption that all qualities are equally real follows only from his peculiar definition of reality. To one, for instance, who defines reality as being that has consistency, position in time and space, or is the fulfilment of a purpose, the quality of not having this attribute certainly does not belong to the realm of the real.

Professor Sheldon says: "There is an absurdity lurking in any definition of reality . . . the minute we make predications we leave the sphere of Being [why on earth the capital?] and go over to that of character." But this argument is again the assumption that reality can be nothing but characterless being which is thus indistinguishable from nothing. There is a certain arbitrary element in all definitions, and Professor Sheldon has a perfect right to define reality in the peculiar way he does, so that having no negative it becomes insignificant; but this offers no basis for attacking the equal right of others to define reality in a different way, provided they hold to it consistently. As a matter of fact, Professor Sheldon does not succeed in holding to *his* definition consistently when he speaks of reality as something positive and present to the mind, or has the fullness of being, or is synonymous with actuality. Surely many things, like the end of the present war, have being, but are devoid of actuality.

Not only has Professor Sheldon failed to show that the term *unreality,* as used in any actual or historical philosophic venture, involves self-contradiction, but it may be maintained that no term as such involves self-contradiction. It is only the definition of a term that can come into contradiction with some other definition or proposition in the same system.

II

Dr. Owen's method is more empirical or historical. *Real* and *unreal* are terms which have been used by people to distinguish certain things, and the task of the philosopher is to find out what precisely people have in mind when they use that distinction. This makes the task of the philosopher the same as that of the lexicographer; and doubtless it is of the utmost importance to make explicit

and clear that which in ordinary usage is implicit and unclear. But that is, I imagine, only the beginning of philosophic wisdom. Experience shows that words that are widely used acquire a great variety of meaning, and frequently there is nothing but a merely historical or accidental connection, if any, between the different meanings of the same word in actual usage. If we examine the meanings of the word *cause, right,* or of the little word *or,* we find that each has a variety of meanings which have nothing philosophically significant in common. In the light of linguistic experience I think that Dr. Owen's initial postulate, that if "words are habitually used" they "must have a definite connotation,"[2] not only fails to possess logical necessity, but does not even possess a high degree of probability. At any rate, one has no right to start with the question, what is *the* philosophic meaning of a word like *reality* (except in a given context). One must, to make Dr. Owen's procedure defensible, first undertake an exhaustive catalogue and analysis of *all* the meanings of the term and show affirmatively that all these meanings *do* have something in common. I doubt, however, whether that procedure would yield much that is significant.

Dr. Owen's analysis of the examples he has chosen serves to show that people use the terms real and unreal to denote the distinction between that which has the value of genuineness and that which is spurious, *e. g.,* real money as opposed to counterfeit, real diamonds as opposed to glass or paste, etc.[3] But *reality* has also been widely used in many other senses. Thus it is used to denote a certain vividness or intensity of feeling, as when we say, the sufferings of Jean Valjean or Monte Cristo are more real to us than those of actual Chinamen personally unknown to us; or when we say that the imaginary heroes of our childhood were more real to us than our unknown ancestors. The *real* is also that which stands in a certain relation of priority or superiority to the *seeming.* The two railway tracks may *seem* to meet, but we know they are *really* parallel, *i. e.,* the latter judgment harmonizes better with all other judgment and explains even how the seeming arises. Again, when we speak of the *real* Mr. X, behind the outer manner, and in general when we contrast reality and outer appearance, we have with us the ancient idea of essence, as opposed to extraneous or removable circumstances, the kernel of the cosmic nut.

[2] This postulate is also used by Professor Sheldon in his papers on Causality.

[3] Though Dr. Owen disclaims it, I fail to see how his analysis does anything more than show that by real and unreal we mean the objects of true and false judgment, respectively. This is perhaps obscured by the figurative language such as "the stones masquerade as diamonds." Does this mean anything more than that we judge them to be diamonds? And when it is said further that they "are unable to substantiate their pretensions" does this mean anything more than that we have found our original judgment to be false?

If we canvass the technical philosophic definitions of reality we find them almost as numerous as philosophic systems. The materialist and the Hindoo mystic may both use the word *reality* and they may both experience some elation or feeling of superiority when they utter it, but they mean by it entirely different things. We may for mnemonic convenience sum up the difference between these two philosophies by saying that they define reality in different ways. But two systems that differ only in a definition may be theoretically equivalent, *i. e.*, they may differ only in the names they attach to the same entities. If there is a genuine difference between materialism and mysticism it is because they differ as to whether certain entities possess given characteristics or whether certain inferences are valid. But there can be no doubt that their use of the same word *reality*, especially when their definitions are not explicitly stated at the outset—tends to hide and confuse the important significant differences.

III

The question as to the use of the terms real and unreal seems to me primarily a practical one, *i. e.*, a question of linguistic policy. I take it that no one would deny that the great need of philosophic discussion is for terms that have a definite connotation rather than an honorific use. Do the words *real* and *unreal* in actual usage always denote some definite object or aspect of things? Can they not be replaced by some neutral words or symbols that do not drag with them penumbra of shadowy meanings and emotional associations that hamper the spirit of inquiry? You may define the term *real* in any way you please, but experience has shown that the chances of your always communicating some definite idea by its use are very meager. *Reality*, let us admit, has become a term of popular philosophic cant taking the place that words like *nice* or *grand* have among the less cultivated members of the community. Why can't we agree to eliminate these banal words altogether? It is difficult, I admit, for any one of us to get rid of the habit of using such convenient satisfying words, but it seems to me that a consensus of the philosophically educated might at least make the use of these terms a sign of bad taste, and thus lead to their gradual elimination. In all the advanced special sciences the discarding of vague popular terms and the substitution for them of purely technical terms or symbols have been of inestimable value in the elimination of misunderstanding and indefiniteness of fundamental issues. I think the same would be true of philosophy if we could agree to give up such edifying but confusing words as reality and experience.

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REVIEWS AND ABSTRACTS OF LITERATURE

The Crowd in Peace and War. MARTIN CONWAY. New York: Longmans, Green, and Company. 1915. Pp. 332.

How profoundly the great war is affecting the minds of all thoughtful men is indicated in the fact that the author of this work, who is professor of art in Liverpool and Cambridge, and who has already published nine books concerning matters artistic and ten relating to exploration and the sport of mountain-climbing, turns here to a special inquiry in the field of psychology as this is related to war.

As our author's mode of approach is in the main quite original, and as he makes few references to other writers on similar subjects, his book may be considered solely on its own merits. Treated as such, the reader can not but find it intensely interesting (there is not a dull page from cover to cover) and at the same time will find himself stimulated by much enlightening discussion and keen analysis.

Sir Martin begins with a study of the nature of crowds and of crowd leaders; he then treats of crowd organization and of the relation of the crowd to government; then of the relation of the crowd to liberty and freedom, to education, to morals and religion; then of "over-crowds"; and finally gives five short chapters, less than a fifth of the volume, to the application of his thought to war.

The crowd, as he uses the word, is any form of expression of man's gregarious instinct; we have examples in mobs, and "well-behaved crowds," races, empires, nations, ecclesiastical and religious bodies, political parties, in fact any group that possesses a separate existence and an internal unity whether this does or does not involve physical presence together at one time or place (p. 15). The minimum number of a crowd he thinks is determined by the fact that "its numbers are too large for general conversation to be possible. . . . Experience proves that a jury of twelve does in fact act as a crowd, and it is probable that that number has been in process of time arrived at because it is the minimum number that can be normally relied upon so to act" (p. 22).

Taken in this broad sense, he attributes to crowds certain characteristics which may well form the basis of our main consideration in this brief review. The mark of the crowd as distinguished from the individual, he tells us, is that "individuals and crowds act on different motives, individuals being directed in the main by reason, crowds by emotion" (p. 21). The crowd does not possess "the power of restraint and direction provided for individual wisdom, experience, and foresight. . . . It merely desires" (p. 153). "No two individuals (p. 32) can ever think alike, whilst any number can feel alike" (?). "Absorption into a crowd is not an intellectual but an emotional process" (p. 40).

In all this there is much of truth, but in it all is a minimum of error which is very significant in its results; for we here see emphasized the commonplace misconception that individual men are "directed in the main by reason," to which no psychologist to-day will agree. Nor is the

sharp distinction between the individual and the crowd made on this basis fundamentally true, if we consider the crowd, as we should, merely as a grouping of individuals. If we do so we should properly express the facts which Sir Martin so forcibly presents by saying that individuals when correlated in crowds find themselves more than usually carried away by instinctive reactions, of which emotional expressions are a special type; this being largely due to the fact that where crowds exist waves of emotion are cumulatively stimulative, and thus the directing power of the individual which is involved with intelligence is inhibited.

The commonplace error thus referred to might be excused in a work which appeals, as this does, to a more or less popular audience, did it not carry with it a constant tendency to treat the crowd as a *quasi* personal entity. Thus the crowd is spoken of as a "beast" (p. 234) and we are told that "all nations are natural born fools" (p. 98). Thus, again, our author speaks of crowds as possessing two instincts; "the instincts of expansion and of self-preservation" (p. 70), forgetful that these passions exist in the individual members of the crowd and not in the crowd as distinguished from the individual. And again we read (p. 298) that "crowds display every degree of self-consciousness."

All this might be passed over without serious criticism were it not that this view, as here and elsewhere expressed, carries with it the vicious notion that in becoming a member of a crowd the individual's independent existence practically disappears, and with it his moral obligation and responsibility, a notion which may be repudiated when clearly stated, but which must necessarily affect the thought of those who, even tacitly, accept this conception of the personal nature of a crowd.

The acceptance of this conception also leads one to overlook the fact that the instinctive action of the crowd is the sum of the instinctive actions of the individuals forming the crowd (*cf.* p. 270 "The power that makes war, and wins victories, is the passion of a people"); and that the control of the crowd instincts, such, for instance, as are involved in the initiation and prosecution of wars, can only be gained by efforts to control the instinctive responses of the individual. We shall never get rid of war until we learn to curb the fighting instinct of individual men, which in its collective aspect is war; or to remove the stimuli which lead to the automatic expression of this instinct, *e. g.*, in hate and covetousness, which in their collective forms appear as international suspicion and hate, and as that international covetousness which leads the most advanced of nations to exploit the so-called "lower races."

In fact, Sir Martin tacitly accepts this view that we must deal with crowd reactions as the reactions of the individuals composing the crowd, notwithstanding the fact that his view above referred to stands in opposition. For he treats of war as the expression of instinctive phenomena, which, of course, can only appear as the acts of individuals. Thus he holds (pp. 266 ff.) that all independent nations, as such, "are mutually hostile to one another," this hostility being merely latent "in times called times of peace"; in this maintaining, somewhat after the manner of

Kant, that "a state of war is the natural condition of independent crowds, and would be their normal state but for the impediments placed in their way." "It is not the cause of war," he says, "that requires to be sought, but the cause of peace" (p. 268).

Following this train of thought he argues "it is ultimately only force that preserves peace between similar crowds, and that kind of force can not be provided except by an over-crowd" (p. 272), the formation of which "is the only force by which war can be banished" (pp. 276–7). In this he is apparently not only upholding the formation of an international "League to Enforce Peace," but is also assuming that international armies and navies will be the only weapons such a League can wield. To this last point not all who wish for the establishment of such a League will agree; for it may well be that a new weapon, equally effective and less cruel than war, will be found in thoroughgoing international ostracism.

Enough has been said to indicate the interest of the book; this review would be inadequate, however, did it not refer to the wealth of illustration from current affairs, and the brilliant and often witty suggestions found from time to time in its pages; as, for instance, where our author suggests (p. 148) that, as kings are needed, we call in "the aid of science to direct the breeding of a truly royal race"; and where he argues (p. 116) that "if sin be defined as an action done by an individual to the detriment of the crowd to which he belongs, and the latest category of sins is certainly of that sort, it follows that an individual [who is a crowd-representative], who in fact incorporates his crowd and can not act but in conformity with it, can not sin. A king, therefore, can do no wrong when he is acting publicly as king; whilst constitutional securities prevent him from publicly acting in any other way. Thus, too, the Pope is of necessity infallible, from the point of view of his crowd, when he speaks *ex cathedra* and *de fide*, that is to say, under the restrictive control of all those securities which in fact provide that he shall voice the sentiments of the crowd which he officially incorporates."

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Trends of Thought and Christian Truth. JOHN A. W. HAAS. Boston: Richard G. Badger. 1915. Pp. 314.

The point of view of this fresh metaphysical orientation is suggested by the title: the Christian fundamentals are "truth"; the doctrines of present-day philosophy are "trends of thought." The discussions are calm and fair, and show a wide range of reading; but they do not undertake to establish the Christian position. That is taken for granted. The book is not properly an apologetic, being written, not for the independent inquirer, but for the orthodox believer who wishes to know how the newer philosophical thought of the day bears upon his faith. To others the interest of the book is likely to be largely in the frank way in which it recognizes the importance of "modern logical positions"—a field so scandalously neglected by some metaphysicians.

In pursuance of his aim the author reviews in succession the claims of mathematics, induction, hypothesis and trial, mechanics, biology, psychology and sociology to furnish the norms of truth, and evaluates each of them on the basis of the needs of Christian belief and life. The prestige of mathematics, based upon its accuracy and great constructive range, he finds to be greatly abated by recent criticism, which shows that it is based more upon postulates of reason than upon existential facts. Hence "mathematics can not claim to dictate to religious experience or thinking." Induction he reduces to the "arrangement of phenomena according to a constant." The ordinary use of it he considers to be unduly narrow, in that it assumes that the "constant" must be quantitative, *i. e.*, in the material order, whereas the constants of Christianity, which have a place for induction, are the religious consciousness (internal) and a real revelation (external). In this field the author encounters narrow sailing when he attempts to justify the use of analogy to establish cosmic design and yet exclude it from the interpretation of Christianity as compared with other religions. Hypothesis "has and can lead Christian thinking to new possibilities and fresh vistas," but the author thinks the "conjectural imagination" has been abused (through "a wrong naturalistic presupposition") in the historical criticism of the Bible. The value of the concept of mechanism is recognized within limits. The objection is raised, however, that it is fundamentally static, whereas Christianity is progressive. The value of the evolutionary idea is recognized, also, but the determinism based upon the sole sway of environment, heredity, and variation is rejected. "There can be no toleration on the part of Christianity," says President Haas, "of any evolution which is its own beginning and continuation, and of any creation which has its origin in a process, but not in God" (pp. 121 ff). As to the psychological investigation of religion, though it arouses his interest and sympathy, yet he denies that judgments based upon it can be final; for, if so, religious ideas and ideals would have no independent worth, and there would be "no freedom for faith."

The second part of the volume contains careful reviews of absolutism, mysticism, pragmatism, neo-vitalism, and neo-realism, in all of which more or less good is found, but none of which is wholly approved. Eucken's system is the one most acceptable. As to absolutism, Dr. Haas's judgment is that "we are safe only when we maintain a transcendent God . . . immanent by presence and effects, but not in essence and being." Pragmatism is approved in so far as it stands for development, for hypothesis and trial in experience, and for emphasis upon values and freedom; but it is condemned for its common allegiance with pluralism and naturalism, its disparagement of sovereign ideas, and its undermining of religious authority.

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JOURNALS AND NEW BOOKS

RIVISTA DI FILOSOFIA. May, 1916. *Antistene* (pp. 157–171): G. ZUCCANTE. – Antisthenes, a pupil and friend of Socrates, rejected the theoretical teachings of his master, and, by so doing, was led to the negation of science and knowledge. *Autorità e libertà in filosofia* (pp. 172–190): M. LOSACCO. – The true value of a philosophical system is not measured by the number of disciples it may gain, but by the further thought which springs from it. *Guerra e diritto* (pp. 191–216): *G. Folchieri.* – War is a true reality and a manifestation of reality which has its roots in that same human nature of which the whole history of our race is a product. *Il pensiero storico italiano nel Settecento* (pp. 217–249): G. NATALI. – A synopsis of the philosophy of Italy during the eighteenth century. *Scuola e Pensiero italiano* (pp. 250–274): T. ARMANI. – The function of the school is to understand and to teach the causes of our national development, without which our present ideas lose their historical continuity and their philosophical significance. Aldo Mieli, *Le scuole ionica pythagorica ed eleata:* A. FAGGI. E. de Michelis, *Il problema delle scienze storiche:* A. ALIOTTA. Henri Marconi, *Histoire de l'involution naturelle:* R. FUSARI. L. Carabellese, *La scienza morale:* G. VIDARI. Visconti Luigi, *La Pedagogia del romanticismo tedesco.* G. VIDARI. *Notizie e Commenti. Sommarii di Riviste.*

Merrington, Ernest Northcroft. The Problem of Personality. New York: The Macmillan Company. 1916. Pp. viii + 229. $1.30.

Pillsbury, W. B. The Fundamentals of Psychology. New York: The Macmillan Company. 1916. Pp. vii + 562. $2.00.

Ritchie, David G. Natural Rights. London: George Allen and Unwin; New York: The Macmillan Company. 1916. Pp. 304. $2.60.

Webb, Clement C. J. Group Theories of Religion and the Religion of the Individual. London: George Allen and Unwin; New York: The Macmillan Company. 1916. Pp. 208. $1.75.

NOTES AND NEWS

Nature comments as follows on the death of Mr. Benjamin Kidd: "Mr. Benjamin Kidd, the author of important books and articles in which a system of social philosophy is developed from an original point of view, died on October 2, at fifty-eight years of age. His first work, 'Social Evolution,' is the best known, and when it was published in 1894 its originality and force were recognized immediately. The keynote of the work was the declaration that religion is not the enemy of science and enlightenment, but, on the contrary, through the ethical principles of its teaching, has been one of the most important agencies in social development, and is closely bound up with that portion of our nature to which all modern social advance is due, and by which the course of future progress will be decided. Mr. Kidd thus found the causes of the evolution of society and of modern

civilization, not in the growth of intellect and of science, but in the continuous action of religious beliefs. In 1898 was published his book, 'The Control of the Tropics,' which directed attention to the importance of the tropics in the development of civilization; and in 1902 appeared his 'Principles of Western Civilization,' which made 'efficiency in the future' the determining quality of social development. This 'projected efficiency,' when 'society, with all its interests in the present, is subordinated to its own future,' was regarded as the secret of success and of progress, and its absence was the cause of stagnation. Mr. Kidd was also the author of other notable works. To the tenth edition of the 'Encyclopædia Britannica' he contributed a prefatory article on 'The Application of the Doctrine of Evolution to Sociological Theory,' and for the eleventh edition he wrote the article on sociology. In 1908 he delivered the Herbert Spencer lecture at Oxford upon the subject of 'Individualism and After.'"

DR. WILLIAM FREDERICK BOOK, formerly professor of educational psychology at Indiana University, who for the past three years has been on leave of absence from the university, and employed by the Indiana State Board of Education to organize vocational education in the state under the new Indiana Vocational Education Law, will return to the university next fall, as soon as the state vocational surveys now being made under Dr. Book's direction are finished and recommendations made for further developing vocational instruction in the state. At a recent meeting of the Board of Trustees, Dr. Book was appointed director of the psychological laboratory, in the department of sociology, the position formerly held by Professor M. E. Haggerty, and professor of educational psychology in the School of Education.

THE twenty-fifth annual meeting of the American Psychological Association, in affiliation with the American Association for the Advancement of Science, will occur on Wednesday to Saturday, December 27 to 30, in New York City. By invitation of the psychologists of Columbia University the sessions will be held at that institution. It is proposed to hold the regular meetings in Teachers College. Since this meeting marks the twenty-fifth anniversary of the association, an appropriate programme commemorating the event will be held on Thursday afternoon, December 28, the annual banquet being held on the evening of the same day.

MR. W. S. MILLER, who was assistant in education, and secretary of the School of Education, University of Illinois, from 1912 to 1916, has been appointed to an assistant professorship in education at the University of Minnesota. He will have charge of the practise school connected with the College of Education.

DR. ELIZABETH WOODS some time ago resigned her position as assistant professor of psychology at Vassar College to become director of Child Welfare in Pasadena, California.